

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

These amendments introduce no new matter and support for the amendment is replete throughout the specification and claims as originally filed. These amendments are made without prejudice and are not to be construed as abandonment of the previously claimed subject matter, or agreement with any objection or rejection of record.

**Listing of Claims:**

Allowed Claims:

1. **(Currently amended)** A composition comprising an orthogonal aminoacyl-tRNA synthetase (O-RS), wherein the O-RS preferentially aminoacylates an O-tRNA with *p*-acetyl-L-phenylalanine; and,

wherein the O-RS comprises an amino acid sequence selected from SEQ ID NO.: 18 or a conservative variation thereof comprising at least 90% sequence identity with SEQ ID NO: 18; and,

wherein the ORS further comprises an Ala or Leu at a position corresponding to position 32, or comprises Gly at a position corresponding to position 158 compared to wild type tyrosyl tRNA synthetase from ~~Methylococcus~~ Methanococcus jannaschii.

2. **(Cancelled)**

3. **(Previously presented)** The composition of claim 1, wherein the O-RS is derived from a *Methanococcus jannaschii*.

4. **(Previously presented)** The composition of claim 1, comprising a cell, wherein said cell comprises said O-RS.

5. **(Original)** The composition of claim 4, wherein the cell is an *E. coli* cell.

6. **(Original)** The composition of claim 1, comprising a translation system.

7. **(Previously presented)** The composition of claim 1, further comprising said O-tRNA.
8. **(Original)** The composition of claim 7, wherein the O-tRNA comprises or is encoded by a polynucleotide sequence of SEQ ID NO.: 21.
9. **(Currently amended)** A cell comprising a translation system, wherein the translation system comprises:
- an orthogonal-tRNA ( O-tRNA);
  - an orthogonal aminoacyl-tRNA synthetase ( O-RS); and,
  - p*-acetyl-L-phenylalanine;
- wherein the O-RS preferentially aminoacylates an O-tRNA with *p*-acetyl-L-phenylalanine wherein the O-RS comprises an amino acid sequence of SEQ ID NO.: 18 or a conservative variation thereof comprising at least 90% sequence identity with SEQ ID NO: 18;
- and comprising Ala or Leu at a position corresponding to position 32 or comprising Gly at a position corresponding to position 158 compared to wild type tyrosyl tRNA synthetase from ~~Methylococcus~~ Methanococcus jannaschii.
10. **(Previously presented)** The cell of claim 9, wherein the O-tRNA comprises or is encoded by a polynucleotide sequence as set forth in SEQ ID NO.: 21, or a complementary polynucleotide sequence thereof.
11. **(Cancelled)**
12. **(Original)** The cell of claim 9, wherein the cell is a non-eukaryotic cell.
13. **(Original)** The cell of claim 12, wherein the non-eukaryotic cell is an *E. coli* cell.
14. **(Previously presented)** The cell of claim 9, further comprising a nucleic acid that comprises a polynucleotide that encodes a polypeptide of interest, wherein the polynucleotide comprises at least one selector codon that is recognized by the O-tRNA.
15. **(Currently amended)** An *E. coli* cell, comprising:
- an orthogonal tRNA (O-tRNA);

an orthogonal aminoacyl- tRNA synthetase (O-RS), wherein the O-RS preferentially aminoacylates the O-tRNA with *p*-acetyl-L-phenylalanine;

wherein the O-RS comprises an amino acid sequence selected from SEQ ID NO.: 18 or a conservative variation thereof comprising at least 90% sequence identity with SEQ ID NO: 18;

and comprising Ala or Leu at a position corresponding to position 32 or comprising Gly at a position corresponding to position 158 compared to wild type tyrosyl tRNA synthetase from ~~Methylococcus~~ Methanococcus jannaschii ;

*p*-acetyl-L-phenylalanine; and,

a nucleic acid that comprises a polynucleotide that encodes a polypeptide of interest, wherein the polynucleotide comprises at least one selector codon that is recognized by the O-tRNA.

**16. (Previously presented)** The *E. coli* cell of claim **15**, wherein the O-tRNA comprises or is encoded by a polynucleotide sequence as set forth in SEQ ID NO.: 21, or a complementary polynucleotide sequence thereof.

**17. (Previously presented)** An artificial and isolated polypeptide comprising SEQ ID NO: 18.

**18 to 28 (Cancelled)**